MHA-242733-Q5

2400-2700 MHz Fully Matched Power Amplifier
Preliminary Data Sheet
May 2008

Features:

- **Frequency Range: 2400 – 2700 MHz**
- **P1dB: +33 dBm**
- **Pave: +26 dBm @ 2.5% EVM under 802.16/64 QAM**
- **OIP3: +44 dBm**
- **Gain: 14 dB**
- **Vdd =+7.5V**
- **Input and Output Fully Matched to 50 Ω**
- **MTTF > 100 years @ 85ºC ambient temperature**
- **RoHS Compliant Surface-Mount QFN 5X5mm Package**

Applications:

- **WiMax**
- **WLAN**
- **Wireless Security Systems**
- **ISM Band Applications**

Description:

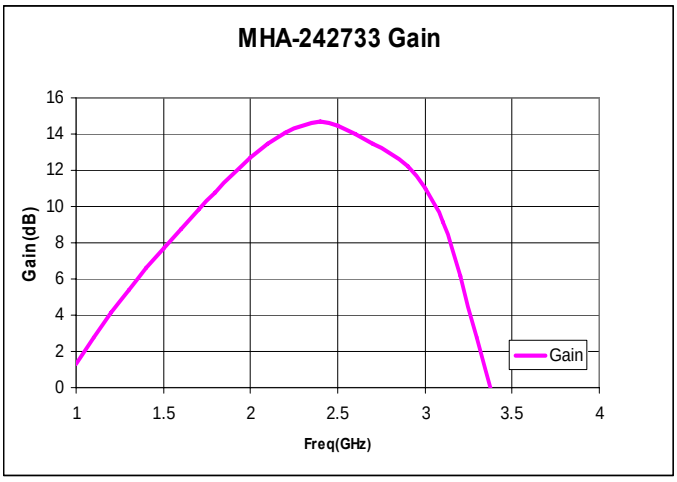
The MMA-242733-Q5 is a high linearity InGaP HBT MMIC amplifier. It is in a low cost QFN 5X5mm Green Package. Applications include the driver and the output stage of the power amplifiers for WLAN and WiMax infrastructure base stations and access points. The third order intercept performance of the MMA-242733-Q5 is excellent and is typically 11 dB above the 1 dB gain compression point. It provides +33 dBm P1dB, +44 dBm OIP3 and output power of +26 dBm @ 2.5% EVM under 802.16/64 QAM test signal.

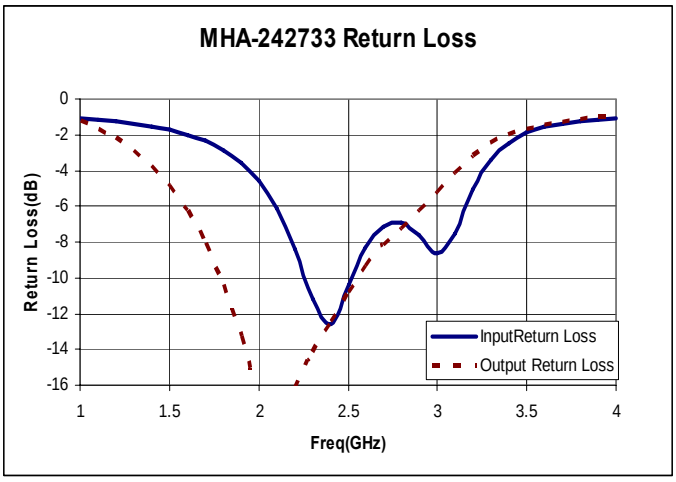
ELECTRICAL SPECIFICATIONS: *Vcc=7.5V,, Icq=640mA, Ta=25 ºC, Z0=50 ohm*

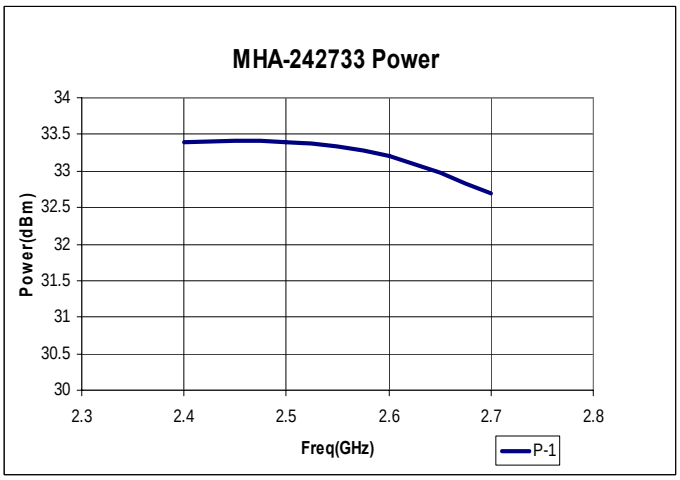
Parameter	Units	Typical Data
Frequency Range	MHz	2400-2700
Gain (Typ / Min)	dB	14 / 12
Gain Flatness (Typ / Max)	+/-dB	1.0 / 1.5
Input Return Loss	dB	8
Output Return Loss	dB	8
Output P1dB	dBm	33
Output IP3 (1)	dBm	44
Pout @ 2.0% EVM	dBm	25
Operating Current Range (Typ / Max)	mA	640 / 800
Thermal Resistance	°C /W	12

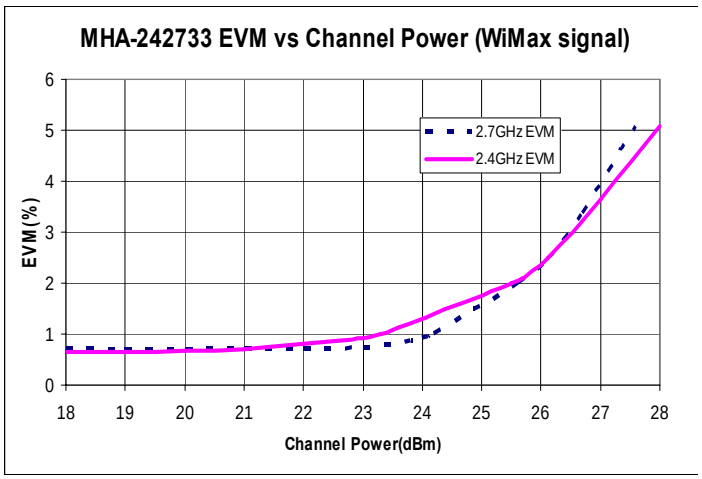
(1) Output IP3 is measured with two tones at output power of 13 dBm/tone separated by 10 MHz.

Typical RF Performance: *Vds=7.5.0V, Icq=640mA, Z0=50 ohm, Ta=25 ºC*









Absolute Maximum Ratings: *(Ta= 25 ºC)**

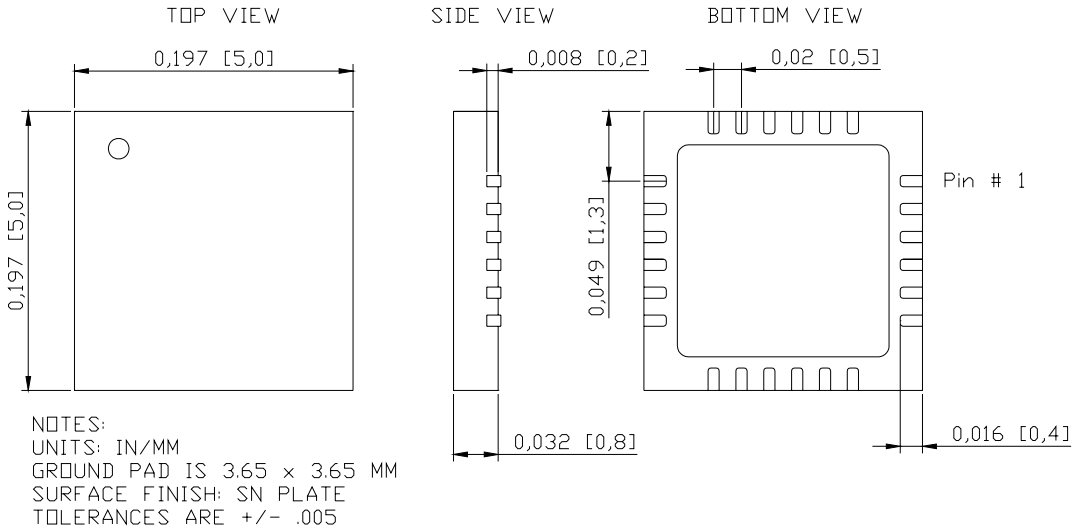
SYMBOL	PARAMETERS	UNITS	ABSOLUTE MAXIMUM
Vcc	Drain-Source Voltage	V	9.0
Icc	Drain Current	mA	1000
Ipc	Gate Current	mA	9.0
Pdiss	DC Power Dissipation	W	6.0
Pin max	RF Input Power	dBm	+30.0
Tch	Channel Temperature	ºC	150.0
Tstg	Storage Temperature	ºC	-60.0 to 150.0

*Operation of this device above any one of these parameters may cause permanent damage.

Typical Scattering Parameters: *Vds=7.5V, Icq=640mA ,Z0=50 ohm, Ta=25 ºC*

Freq(GHz)	dB(S11)	Ang(S11)	dB(S21)	Ang(S21)	dB(S12)	Ang(S12)	dB(S22)	Ang(S22)
1.5	-1.74	44.6	7.71	-5.9	-55.30	-7.9	-4.8	67.4
1.6	-2.01	26.0	8.80	-28.9	-53.60	-41.4	-6.2	51.7
1.7	-2.36	6.5	9.85	-52.7	-53.70	-70.5	-8.1	34.4
1.8	-2.86	-14.1	10.80	-77.4	-53.70	-92.8	-10.4	14.2
1.9	-3.56	-36.1	11.80	-103.0	-52.70	-128.0	-13.3	-10.5
2.0	-4.59	-60.3	12.70	-129.0	-52.00	-177.0	-16.6	-45.4
2.1	-6.14	-88.6	13.50	-157.0	-49.40	143.0	-18.1	-95.8
2.2	-8.40	-124.0	14.10	173.0	-47.10	102.0	-16.2	-138.0
2.3	-11.20	-171.0	14.50	143.0	-44.30	65.0	-14.1	-163.0
2.4	-12.60	123.0	14.70	111.0	-42.20	32.1	-12.4	-180.0
2.5	-10.40	64.8	14.50	79.0	-40.60	-1.1	-10.8	168.0
2.6	-8.32	24.1	14.00	47.3	-39.60	-31.8	-9.3	158.0
2.7	-7.13	-7.9	13.50	15.7	-38.90	-61.0	-8.2	150.0
2.8	-6.88	-33.3	12.90	-16.5	-38.60	-88.8	-7.2	142.0
2.9	-7.63	-51.4	12.20	-50.5	-38.40	-119.0	-6.2	134.0
3.0	-8.66	-57.6	11.00	-87.0	-39.10	-151.0	-5.2	128.0
3.1	-7.52	-56.1	9.12	-125.0	-41.10	176.0	-4.1	120.0
3.2	-5.07	-65.9	6.18	-160.0	-44.70	146.0	-3.2	110.0
3.3	-3.41	-82.7	2.78	169.0	-49.10	127.0	-2.5	99.5
3.4	-2.45	-101.0	-0.75	143.0	-56.40	109.0	-2.0	89.8
3.5	-1.89	-118.0	-4.24	120.0	-64.90	156.0	-1.7	80.9

Mechanical Information: *This Package is RoHS compliant*



All dimensions are in mm

Pin Assignment			
Pin #	**Function**	**Pin #**	**Function**
1	N/A	13	N/A
2	N/A	14	N/A
3	RF in	15	RF out
4	RF in	16	RF out
5	N/A	17	N/A
6	N/A	18	N/A
7	N/A	19	N/A
8	N/A	20	N/A
9	N/A	21	N/A
10	Vcc	22	Vpc
11	N/A	23	N/A
12	N/A	24	N/A